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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,543	11/09/2001	Rudolf Pfaendner	PP/1-21105/A/CGM 474/PCT/	8274

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CIBA SPECIALTY CHEMICALS CORPORATION
PATENT DEPARTMENT
540 WHITE PLAINS RD
P O BOX 2005
TARRYTOWN, NY 10591-9005

EXAMINER

WILSON, DONALD R

ART UNIT	PAPER NUMBER
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1713

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DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,543

Applicant(s)

PFAENDNER ET AL.

Examiner

Donald R Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2004 and 09 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 3-7, 11-13 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 8-10, 14, 15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: _____

DETAILED ACTION***Restriction Requirement***

1. Applicant's election with traverse of the inventions of Group I, Claims 1, 8-15 (for sterically hindered phenols) and Claim 2, in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the restriction requirement is overly complex and burdensome and breaks apart a Markush claim. This is not found persuasive because for reasons which follow. As to the complexity and burdensome nature of the requirement, it is the claims themselves which are complex and certainly also burdensome from an examination perspective. The claimed subject matter covers stabilizing and compatibilizing any plastic or plastic composition with polymeric compounds of almost any description with a broad group of compounds (the Markush group) of unrelated structures. Applicant acknowledges that the Examiner has correctly identified the applicable standard of MPEP § 803.02 for lack unity of invention in a Markush group, i.e., do not (1) share a common utility, and (2) share a substantial structural feature disclosed as being essential to that utility. Applicant then states that the compounds have a common utility, with which the Examiner agrees. However, applicant concludes that the compounds have a common structural element for which applicant provides no basis. Applicant simply states that the common structural element of the compounds is the compatibilizer provided in each compound, which is not seen to be a sustainable basis for concluding that the diverse group of phenols, amines lactones etc. of the Markush group have a common structural element.

2. The requirement is still deemed proper and is therefore made FINAL. Claims 1, 8-15 (not for sterically hindered phenols) and Claims 3 and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

Election of Species Requirement

3. Applicant's election of the specie as exemplified in Example C, page 28 of the specification, as the polymeric compound the of the sterically hindered phenol, i.e., 2,3-epoxypropyl 3,5-bis(1,1-dimethylethyl)-4-hydroxybenzene-propionate reacted with a polyethylene/acrylic acid/acrylate, in the same Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without

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traverse (MPEP § 818.03(a)). In a telephone conversation on 6/2/03 applicant clarified that the elected specie of polyethylene/acrylic acid/acrylate, identified in the specification as Lucalen® A 3110 MX, is in fact a copolymer of ethylene, acrylic acid and butyl acrylate. As noted below the specification also needs to be clarified in this regard.

4. Applicant's further election of the plastic materials used in Example C as the plastic materials in Paper No. 7 is acknowledged. However, this is not responsive to the requirement as the plastic materials in Example C, are not the claimed plastic or plastic composition being stabilized as set forth in the claims.

5. During a telephone conversation with Mr. Kevin T. Mansfield on 6/3/03 a provisional election was made with traverse to prosecute the invention of a mixture of low density polyethylene (LDPE) and nylon-6 as the plastic composition being stabilized. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected specie of the invention.

6. Claims 1-2, 8-10, 14-15 and 17 are under consideration.

Objection to Specification

7. The disclosure is objected to because of the following informalities: Applicant elected the polymer used in Example B and C as the specie of polymeric compound. This polymer is only defined as polyethylene/acrylic acid/acrylate (Lucalen® A 3110 MX of BASF). As noted above, applicant indicated ^{up} that this is known to be a terpolymer of ethylene, acrylic acid and butyl acrylate. Applicant needs to _{not} correct the specification using an art recognized terminology for the polymer used in the Examples. However, applicant will also need to provide a basis for such an amendment showing that at the time the priority document was filed that the chemical composition of Lucalen® A 3110 MX of BASF was publicly known. Appropriate correction is required.

Rejection under 35 U.S.C. § 101

8. **Claim 17 is rejected under 35 U.S.C. §101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101.** See for example Ex ⁶¹²

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parte *Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 112, First Paragraph

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. ~~Claims 1-2, 14-15 and 17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "compatibilizers" which are polymeric compounds which contain a functionality reactive with the reactive groups of the stabilizer compounds, does not reasonably provide enablement for other types of compatibilizers.~~ The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with these claims. The only compatibilizers disclosed to be useful in the invention are those described above. It is unclear what if other types of compatibilizer compounds would be effective in the invention and undue experimentation would be required to determine what such other useful compatibilizers exist.

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not NM?

11. ~~Claims 1-2, 8-10 and 15 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for stabilizing and at the same time compatibilizing plastic or plastic compositions containing at least two polymer, does not reasonably provide enablement for stabilizing and compatibilizing plastic or plastic compositions containing only one polymer.~~ The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. Claim 14, which depends from Claim 1 specifies that the polymers to be stabilized are at least two different polymers. As Claim 14 must further limit Claim 1, this then implies that Claim 1 must include stabilization and compatibilization of compositions containing only one polymer. However, it is not seen how one compatibilizes a composition of only one polymer. This is particularly true in light of the specification which appears to only teach compatibilization of polymer mixtures. In the alternative, Claim 14 is objected to as not being further limiting.

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Claim Rejections - 35 USC § 112, Second Paragraph

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. **Claims 1-2, 8-10, 14-15 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

14. The language of Claim 1 is indefinite because the metes and bounds of what is included in "a compatibilizer" cannot be told. The only materials within the scope of enablement appear to be those which are polymers and which contain a functionality reactive with the reactive groups of the stabilizer compounds as is noted above. ✓ o/c

15. Claim 2 is indefinite because "n" cannot be "3". As the benzene ring of formula 1 has an -OH, an -A-E, n -R₁ and n R₂ groups, the largest "n" can be is "2". X ✓

16. The languages of Claims 8-10 are indefinite because the compatibilizer compound does not have a clear antecedent basis, and could be interpreted to mean either the "polymeric compound" or the "compatibilizer". ✓ o/c

17. Claim 8 is also indefinite because of an improper Markush group, i.e., polyethylene and polypropylene are polymers, and vinyl acetate and styrene are monomers, and thus, do not share the same utility. Further, polyethylene and polypropylene are not materials from which copolymers are made unless one is specifically talking about graft copolymers, which isn't specified in the claim. X ✓ o/c

18. Claim 9 is indefinite because it is unclear what polymers are included which have the recited AA, GMA, MAA, MAH or VA functions. If these are polymers made by polymerization of these monomers they would no longer contain said "functions". ✓ w/ o/c

19. Claim 10 is indefinite because it is not clear what is meant by the listed copolymers and terpolymers, because art recognized terminology is not used. Copolymers and terpolymers do not consist of polyethylene and acrylic acid, or the other listed monomers. One may have copolymers of ethylene and the various monomers, or one may graft the various monomers onto polyethylene.

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However, it can not be told what is meant by the terminology used. This is similar to the problem with the elected specie of copolymer used in Examples B and C, which has been discussed above.

20. Claim 14 is indefinite because "the polymers" lacks clear antecedent basis. *Cave*

21. Claim 17 provides for the use of compounds as stabilizers and compatibilizers, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. Therefore the claim cannot be further treated on the merits. If the claim is amended to recite affirmative process steps, it may be restricted as a group of inventions distinct from the other groups of inventions. *Cave*

Objection to Claims

22. Claims 1, 8-10 and 14-15 are objected to as containing subject matter withdrawn from consideration due to the restriction requirement. *6/12*

Claim Rejections - 35 USC § 102(b)/§ 103(a)

23. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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26. **Claims 1-2, 8-10 and 15 are rejected under 35 U.S.C. 102(b) as anticipated by JP'054 or, in the alternative, Claims 1-2, 8-10 and 14-15 are rejected under 35 U.S.C. 103(a) as obvious over JP'054 in view of Examiner's Notice or Admissions by Applicant.** The English language Chem.

Abstract along with help from the patent Office Japanese translator has been used to interpret the patent. A full translation has been requested.

27. JP'054 discloses the stabilization of polyolefins with acrylic or methacrylic acid copolymers which have been esterified by reaction with glycidyl esters of phenolic acids. The glycidyl esters employed include the elected specie of glycidyl 3-(3,5-di-t-butyl-4-hydroxyphenyl)propionate as well as other similar glycidyl esters. One of the acrylic acid copolymers used is a 1:9 acrylic acid-ethylene copolymer, which makes its use with any of the disclosed glycidyl esters readily envisaged. Other acrylic acid containing polymers include acrylate ester copolymers (col. 5). A number of polymers including polyolefins, polyamides, acrylic polymers, ABS and polystyrene are reported to be stabilized (col. 6). While the reference does not teach that compatibilization occurs simultaneously with stabilization, if it occurs in the instant invention with a polymer or mixture of polymers, it is reasonable to expect it occurs in the invention of JP'054. Whether or not the polymers have been recycled does not result in a patentable distinction.

28. JP'054 is deficient in not teaching the esterification of the elected specie of an acrylic acid terpolymer with the glycidyl esters of phenolic acids. However, lacking a showing of criticality for the terpolymers, and in view of the broad types of acrylic acid containing copolymers that can be used, including both ethylene and acrylate ester copolymers, it would have been obvious to one of ordinary skill in the art to use a terpolymer such as the elected specie of the instant invention with an expectation of equivalent results.

29. JP'054 is further deficient in not teaching the stabilization of polyolefin blends. The Examiner takes notice that it is well known to make and use blends of polyolefin polymers, for example to make an impact modified polypropylene, by blending an ethylene/propylene copolymer with a propylene homopolymer. It would have been obvious to one of ordinary skill in the art to employ the polymeric stabilizers disclosed by JP'054 in the well known polyolefin blends for their intended purpose.

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30. Applicant has also admitted that the preparation and use of polymer blends such as the elected specie of a polyethylene/nylon-6 blend is known. It would have been considered routine and well known to use stabilizers in such polymer blends for their intended purpose. It would also have been obvious to one of ordinary skill in the art to use the stabilizers taught by JP'054 in polyethylene/nylon-6 blends with an expectation of improved performance over lower molecular weight stabilizers in terms of permanence, i.e., lack of bleeding, lower extractability etc.. This is particularly so as JP'054 teaches their use in the individual components of such a blend.

Art of Interest/Technological Background

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, and may be used in the rejection of non-elected species of the claimed invention.

32. JP'055 discloses the stabilization of polyolefins with stabilizers prepared from acrylic acid copolymers and hindered p-glycidyloxyphenols.

33. JP'782 discloses the stabilization of polyolefins with ethylene-vinyl acetate copolymers which have been transesterified to produce hindered phenol esters.

34. JP'719 discloses the stabilization of polyolefins by grating with carboxylic acid containing monomers followed by reaction with the elected specie of hindered phenol.

35. MacLeay discloses the stabilization of polymers or polymer blends with stabilizers prepared by the reaction of hydrazido substituted hindered phenols with cyclic anhydride containing polymers. EP'996 has a similar disclosure and also includes reactions with amine substituted hindered phenols.

36. Popisil (Advances in Science 101) discloses a number of polymeric stabilizers of hindered phenols used as stabilizers in conventional polymers (see formulas # 216, 221a, 228, 229, 242, 243, 247, 248, 254, pp.130 to 145).

Future Correspondence

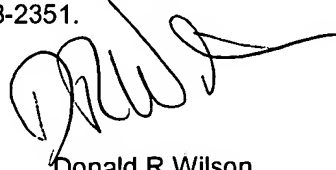
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald R Wilson whose telephone number is 703-308-2398.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 703-308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311

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for After Final communications. The unofficial direct fax phone number to the Examiner's desk is 703-872-9029.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-2351.

A handwritten signature in black ink, appearing to read 'DWilson', with a long horizontal flourish extending to the right.

Donald R Wilson
Primary Examiner
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